



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/733,304

12/12/2003

Hiroyuki Urakami

041514-5318

7325

55694

7590

09/29/2009

DRINKER BIDDLE & REATH (DC)

1500 K STREET, N.W.

SUITE 1100

WASHINGTON, DC 20005-1209

EXAMINER

SHERMAN, STEPHEN G

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

09/29/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/733,304

**Applicant(s)**

URAKAMI ET AL.

**Examiner**

STEPHEN G. SHERMAN

**Art Unit**

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 July 2009.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 4-6 is/are allowed.  
6) ☒ Claim(s) 1-3 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This Office Action is in response to the amendment filed 27 July 2009. Claims 1-6 are pending.

#### ***Response to Arguments***

2. Applicant's arguments filed with respect to claims 1-3 have been fully considered but they are not persuasive.

On pages 5-7 of the response the Applicant argues that the newly amended features of the claims are not taught by Honda '672.

First, the Applicant argues that Honda '672 changes the number of subfields in the field (paragraph [0149]) and thus does not teach "a total number of said subfields in each said field is unchanged" however, the Examiner understands that the Honda '672 reference teaches of using the same number of subfields in each field for each display line and thus for each display line the total number of subfields in each said field is unchanged. Therefore, Honda '672 teaches that "a" total number of said subfields in each said field is unchanged. Further, the addition of this limitation has brought up 112, 2<sup>nd</sup> issues with the claim since the claim recites later that the number of subfields is adjusted (see the rejection below).

Second, the Applicant argues that Honda '672 does not teach that "said emission takes place in each of the subfields" because Honda '672 teaches of the NE subfield in

each field. The Examiner would like to point out, however, that each of the subfields containing the period "NE" also contains a light emission period I (Figure 24) and thus emission still takes place in each of the subfields as claimed. Just because the invention of Honda '672 is different than the Applicant's *invention* does not mean that Honda '672 does not teach the claimed limitations.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 as amended recites "a total number of subfields in each said field is unchanged" but then recites "a controller for adjusting...the number of subfields at each brightness..." Thus the claim contradicts itself by first stating that the number is unchanged and then stating that the number is adjusted. Thus it is unclear from the claim language what the Applicant is intending to claim.

For the purpose of examination, the Examiner will interpret the newly added limitation to mean that while the number of subfields isn't changed in each field, that the number of subfields can be changed from field to field.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. (US 2002/0030672) in view of Honda et al. (US 6,950,114).

***Regarding claims 1***, Honda et al. (US 2002/0030672) disclose a display device including a display panel (Figure 1), wherein each field of an image signal is divided into a plurality of subfields (Figure 24(a)), a total number of subfields in each said field is unchanged (Paragraph [0149] explain that while the number of subfields is changed every field, that for each field it is the same for the display line.), the display panel

includes a plurality of pixel cells for a plurality of pixels respectively, and gray scale display is performed by based on the selectively causing emission in the pixel cells image signal for each of the subfields (Paragraph [0031]-[0032] explain that pixel cells are provided. Figure 3 and paragraph [0036] explain about all of the possible luminance values and paragraph [0048] explains how the luminance values are associated with subfields.), and said emission takes place in each of the subfields such that said emission continues throughout each said field (Figure 24 shows that each subfield has an emission portion I, and thus emission takes place in each subfield and continues throughout the field.), the display device comprising:

a brightness frequency data circuit for generating frequency data indicating a number of pixels at each same brightnesses in a brightness distribution for each field of the image signal (Figures 1 and 2 and paragraphs [0036]-[0040] and [0042]-[0045] explain that according to pixel data, the 1H line luminance distribution analyzing circuit 3 creates accumulated frequency data and a luminance distribution.);

a controller for adjusting, for each of at least two brightness regions for each field of the image signal, the number of subfields at each brightness within each brightness region, based on the frequency data of the pixels concerned (Figure 4 and paragraphs [0047]-[0048] explain that the drive control circuit 2 sets a driving sequence based on the accumulated frequency data, and that the number of subfields used depends on the patterns shown in Figure 4, where 10 subfields are used if full luminance is needed as shown in the region of pattern A, and 5 subfields are used for patterns B, C and D where the brightness regions are between 0 and 128, 64 and 192, and 128 and 255

respectively, where this subfield determination is done every field of the image signal, which is explained in the first sentence of paragraph [0047] which states "...fetches the accumulated frequency data AC in each display line of one field". This means that every though the pattern is changed every line, the number of subfields is still changed for each field.); and

a multi-grayscale processing circuit (Figure 17, 33) for error diffusion processing or dither processing on the image signal for each field (Paragraph [0054] explains that error diffusion processing and dither processing is done by multi-gradation processing circuit 33. Since this processing is done on each line of the display in each field, then the processing is two-dimensional and is done each field.).

Honda et al. (US 2002/0030672) fail to teach wherein said brightness frequency data is generated only on a field-by-field basis.

Honda et al. (US 6,950,114) disclose a display device which has a brightness frequency data circuit for generating brightness frequency data indicating a number of pixels at each same brightness in a brightness distribution for each field of the image signal, said brightness frequency data is generated only on a field-by-field basis (Figure 5 shows the histogram memories where column 3, line 61 to column 4, line 7 explain that these accumulate brightness frequency data for a number of pixels only every field.).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the teachings of only generating frequency data every field as taught by Honda et al. (US 6,950,114) with the display device taught by

Honda et al. (US 2002/0030672) in order to allow for an easier overall compensation that reduces complexity of calculations.

**Regarding claim 2**, Honda et al. (US 2002/0030672) and Honda et al. (US 6,950,114) disclose the display device according to Claim 1.

Honda et al. (US 2002/0030672) also disclose wherein the controller increases the number of the subfields used for the brightness region when a number indicated by the brightness frequency data is larger than a predetermined value (Figure 4 shows that when the frequency data indicates that the brightnesses needed exceed the thresholds of the limitations set by patterns B, C and D, that pattern A is used, which requires more subfields than the other patterns as explained by paragraph [0048].).

**Regarding claim 3**, Honda et al. (US 2002/0030672) and Honda et al. (US 6,950,114) disclose the display device according to Claim 1.

Honda et al. (US 2002/0030672) also disclose wherein the greater a number of the subfields used for the brightness region, the more the controller shortens a period of emission of the pixel cells performed in each subfield (Figure 24 shows that when only 5 subfields are used as shown in (b) the period for emission is longer for SF5 than in the period for emission for SF5 as shown in (a) where there are 10 subfields.).



***Allowable Subject Matter***

8. Claims 4-6 are allowed.
9. The following is an examiner's statement of reasons for allowance:

The primary reason for allowance is the recitation of the "brightness frequency data circuit," "logarithmic conversion circuit," "clipping circuit," "cumulative brightness frequency data circuit," and the "delimiter value generation circuit" all working in conjunction with each other to produce the values which allow for the driving of the pixels, the structure not found singularly or in combination in the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN G. SHERMAN whose telephone number is (571)272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen G Sherman/  
Examiner, Art Unit 2629

/Amr Awad/  
Supervisory Patent Examiner, Art Unit 2629

18 September 2009